Grande Ronde Habitat Improvement Project: Joseph Creek and Upper Grande Ronde River Subbasins

1990
Annual Report
by

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A B S T R A C T

On July 1, 1984 the Bonneville Power Administration and the Oregon Department of Fish and Wildlife entered into an agreement to initiate habitat enhancement work in the Joseph Creek subbasin, a tributary of the Grande Ronde River in northeast Oregon. On July 1, 1985 the upper Grande Ronde River and 33 of its tributaries were added to the contract (Contract No. DE-AI79-84BP16614). Titled The Grande Ronde Habitat Improvement Project:Joseph Creek and Upper Grande Ronde River Drainages, Project 84-25, this project's goal is to optimize spring/summer chinook and summer steelhead smolt production within the Grande Ronde River Basin using habitat enhancement measures. This project provides for implementation of Program Measure 703 (C)(l), Action Item 4.2 of the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program and will be done as offsite mitigation for mainstem fishery losses caused by the Columbia River hydro-electric system. Accomplishing this goal will partially mitigate these losses.

All work being done by the Oregon Department of Fish and Wildlife is on private lands and therefore requires that considerable time be spent developing landowner rapport to insure their acceptance of, and cooperation with, the program.

Work undertaken during 1990 included: 1) construction of 5.8 miles of fence which protected 2.9 miles of stream and 24 acres of riparian area, 2) planting and/or seeding 4.5 stream miles of riparian area, 3) doing instream work on 2.9 miles of stream, 4) developing one off site water development, 5) establishing new photopoints and retaking existing project photopoints, 6) monitoring stream temperatures with thermographs, and 7) doing maintenance on 39.8 miles of fence.

During 1990, four leases were signed (to be implemented in 1991) which will protect 11.5 miles of stream and 245.9 acres of riparian habitat.

INTRODUCTION

The Joseph Creek and upper Grande Ronde River subbasins have recently been examined as part of a Grande Ronde basin study undertaken by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and Oregon Department of Fish and Wildlife (ODFW). The study, funded by the Bonneville Power Administration (BPA), was designed to "compile, by major drainage, the basic information necessary to identify, evaluate, prioritize, and recommend site-specific solutions to major problems impacting the anadromous salmonid resource and fisheries", and "prepare an integrated overall plan for the study area" (CTUIR, 1984). The identification, priority, and implementation of habitat work within these subbasins represents a consensus among staff from Staff, Tribal, and Federal entities (Tables 1 and 2).

The Joseph Creek subbasin has historically been an excellent producer of summer steelhead, and the upper Grande Ronde River subbasin an excellent producer of both summer steelhead and spring chinook. Unfortunately, summer steelhead redd counts from 1970 through 1984 indicated a severe reduction in numbers of spawning adults returning to these subbasins; returns for the past six years, however, indicate a reversal in this trend (Table 3). Spring chinook redd counts indicate that returns to the upper Grande Ronde River subbasin remain well below those observed in the late 1960s and early 1970s (Table 4). Reasons for declines of anadromous fish during the mid-1970s and early 1980s include:

1. problems with passage at mainstem Columbia and Snake River dams,
2. user demands for the fishery resource, and
3. degradation of spawning and rearing habitat.
4. fire and subsequent sluice out of organic particulates into the Upper Grande Ronde River in August, 1989

Considerable effort and money has already been put into trying to resolve mainstem dam passage problems and controlling ocean and river harvest of these stocks. Dam counts at Lower Granite Dam however, indicate that these efforts have not resulted in increased numbers of adult summer steelhead and spring chinook returning to their native spawning grounds in lower Snake River tributaries (Table 5). Several stocks of Snake River Spring Chinook are currently under review by NMFS for a possible listing under the Federal Threatened and Endangered Species Act.

Observations in the Joseph Creek and upper Grande Ronde River subbasins however, indicate optimum rearing areas for summer steelhead and spring chinook are limited in large portions of these subbasins by degradation or riparian and instream habitats (Noll, 1987). Several factors have contributed to this habitat degradation within project areas. Contributing factors include livestock grazing, farming practices, timber harvest practices,

Table 1. The estimated amount of riparian and instream habitat work needed within the Joseph Creek subbasin by stream, and in priority order.

Stream	Species Affected	Priority	Miles of Stream			Miles of Riparian Work				Instream Structures	
						Fencing		Planting			
			USFS	Private	Total	USFS	Private	USFS	Private	USFS	Private
Peavine Creek	Stld	1	8.0	0.0	8.0	4.5	0.0	4.5	0.0	43	0
Elk Creek	Stld	2	3.5	5.0	8.5	3.5	5.0	3.5	5.0	25	35
Chesnimnus Creek	Stld	3	12.0	8.0	20.0	12.0	8.0	8.0	4.0	60	40
Crow Creek	Stld	4	1.0	13.0	14.0	1.0	13.0	0.0	10.0	10	50
Swamp Creek	Stld	5	5.0	10.0	15.0	5.0	10.0	2.5	5.0	10	20
Pine Cr. System	Stld	6	2.0	20.0	22.0	2.0	18.0	2.0	18.0	10	40
Devil's Run Cr.	Stld	7	5.0	0.0	5.0	2.0	0.0	2.0	0.0	10	10
Davis Creek	Stld	8	7.0	3.0	10.0	7.0	3.0	4.0	3.0	10	0
Butte Creek	Stld	9	0.0	4.0	4.0	0.0	4.0	0.0	3.0	0	10
TNT Gulch	Stld	10	2.0	0.0	2.0	2.0	0.0	2.0	0.0	10	0
Joseph Creek	Stld	11	0.0	12.0	12.0	0.0	12.0	0.0	12.0	0	80
Subbasin Totals			45.5	75.0	120.5	39.0	73.0	28.5	60.0	188	285

Confederated Tribes of the Umatilla Indian Reservation. 1984. Grande Ronde River Basin. Recommended Salmon and Steelhead Habitat Improvement Measures. 92 pp.

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Table 2. The estimted amount of riparian and instream habitat work needed within the Upper Grande Ronde River Subbasin by stream, 2nd in priority order.

Stream	Species Affected	Priority	Miles of Stream			Miles of Riparian Work				Instream Structures	
						Fencing		Plantina			
			USFS	Private	Total	USFS	Private	USFS	Private	USFS	Private
Grande Ronde River	Ch.Stld	1	6.0	5.0	11.0	2.0	5.0	1.0	4.0	130	175
Sheep Creek	Ch,Stld	2	7.0	5.0	12.0	1.0	5.0	0.5	2.5	210	175
Fly Creek	Stld	3	6.0	6:0	12.0	1.0	5.0	0.5	3.0	180	180
Spring Creek	Stld	4	5.0	0.0	5.0	1.0	0.0	2.5	0.0	150	0
S.F. Spring Creek	Stld	5	3.0	0.0	3.0	1.0	0.0	1.5	0.0	90	0
N.F. Catherine Creek	Ch.Stld	6	3.0	0.0	3.0	0.0	0.0	0.0	0.0	90	0
McCoy Creek	Stld	7	4.0	7.0	11.0	1.0	7.0	3.0	4.0	120	210
Rock Creek	Stld	8	0.0	6.0	6.0	0.0	8.0	0.0	3.0	0	90
Dark Canyon Creek	Stld	9	1.0	2.5	3.5	0.0	2.5	0.0	0.0	15	38
Meadow Creek	Stld	10	7.0	7.0	14.0	1.0	7.0	0.5	0.5	210	210
Indian Creek	Ch.Stld	11	1.0	5.0	6:0	0.5	3.5	0.0	0.0	30	150
Chicken Creek	Ch.Stld	12	5.0	2.0	7.0	1.0	1.0	0.0	1.0	75	70.
Catherine Creek	Ch.Stld	13	0.0	5.0	5.0	0.0	4.0	0.0	0.0	0	150.
Beaver Creek .	Stld	14	1.5	5.0	6.5	0.0	3.0	0.0	0.0	45	150
Five Points Creek	Stld	15	5.5	0.5	6.0	0.0	0.5	0.0	0.5	165	15
Clark Creek	Ch.Stld	16	0.0	6.0	6.0	0.0	4.0	0.0	3.0	0	180
Little Catherine Cr.	Stld	17	1.0	4.0	5.0	0.0	2.0	0.0	1.5	15	60
Bear Creek	Stld	18	5.0	0.5	5.5	0.0	0.0	0.0	0.0	75	8
Linber Jin Creek	Ch.Stld	19	2.0	0.3	2.3	0.0	0.0	1.0	0.3	30	5
Pelican Creek	Stld	20	3.0	0.5	3.5	0.0	0.0	0.0	0.0	45	8
Peet Creek	Stld	21	2.0	1.0	3.0	0.0	0.0	1.0	0.5	60	30
Little Fly Creek	Stld	22	3.0	2.5	5.5	0.0	0.0	0.0	1.0	CO	75
Whiskey Creek	Stld	23	1.0	8.0	9:o	0.0	4.0	0.0	2.0	I5	120
Jordan Creek	Stld	24	2.0	8.0	10.0	0.0	4.0	0.0	2.0	30	125
W.F. Limber Jin Cr.	'Stld	25	2.0	0.0	, 2.0	0.0	0.0	0.0	-0.0	30	0
Mcintyre Creek	Stld	26	2.5	5.0	7.5	1.0	3.0	1.0	5.0	75	150
Uaucup Creek	Stld	27	5.0	0.0	5 . 0	0.0	0.0	1.0	0.0	150	0
Burnt Corral Cr.	Stld	28	6.0	0.2	. 6.2	0.0	0.0	0.0	0.0	90	4
Lookout Creek	Stld	29	3.5	0.8	, 4.3	0.0	0.0	0.0	0.0	53	24
Little Dark Canyon Cr.	Stld	30	2.0	0.0	2.0	0.0	0.0	' 0.0	0.0	60	0
Phillips Creek	Stld	31	0.0	6.0	. 6.0	0.0	2.0	0.0	0.0	0	180
Gordon Creek	Stld	32	0.0	7.0	7.0	0.0	4.0	0.0	2.0	0	210
Dry Creek	Stld	33	0.0	8.0	8.0	0.0	6.0	0.0	4.0	0	240
Cabin Creek	Stld	34	0.0	3.0	3.0	0.0	2.0	0.0	0.0	0	90
Subbasin Totals			95.0	116.8	211.8	10.5	82.5	13.5	39.8	2,328	3.117

Source: Confederated Tribes of the Umatilla Indian Reservation. 1984. Grande Ronde River Basin. Recomended Salmon and Steelhead Habitat Improvement Measures. 92 pp.

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TABLE 3. Average summer steel head spawning ground counts in the Joseph Creek drainage, 1966 through 1990, (See footnotes 1,2, and 3 below)

	AVERAGE 1966-69	AVERAGE 1970-74	AVERAGE 1915-79	AVERAGE 1980-84	AVERAGE 1985-89	1990
REDDS OBSERVED	496	85	26	87	428	469
MILES SURVEYED	56	54	43	54	48	66
REDDS/HILE	8.9	1.6	0,6	1,6	8.9	7.1

1/ Streams included in the Joseph Creek subbasin summer steelhead spawning ground counts include: Butte, Cnesniaus (mainstem, north, and south forks), Crow, Devil's Run, Elk, Peavine, Swamp, and TNT Gulch creeks. All of these creeks, however, may not be inventoried on any given year due to river conditions. This annual variation is reflected in the 'Miles Surveyed' column,

2/ Since the Joseph Creek and Upper Grande Ronde River drainages are both within the Grande Ronde River basin, it is felt that spawning ground trends within the Joseph Creek drainage are also representative of those within the upper Grande Ronde River drainage.

3/ Summer steelhead spawning ground counts were obtained from Kennth 1. Yitty, District Fish biolgist, Wallowa District, Oregon Department of Fish and Wildlife.

Table 4. Average Spring Chinook spawning ground counts in the Grande Ronde River drainage, 1967 through 1990. (See footnotes l-4 below.)

	AVERAGE 1967-69	AVERAGE 1970-74	AVERAGE 1975-79	AVERAGE 1980-84	AVERAGE 1985-89	1990
REDDS OBSERVED	382	285	117	94	183	94
MILES SURVEY ED	35	27	24	27	31	47
REDDS/MI LE	10.9	10.6	4.9	3.5	5.9	2.0

1/ Late 1960's counts are three or four year averages, 1970-1989 are 5 year averages.

2/ Stream in the Upper Grande Ronde River drainage spring chinook spawning ground counts include North Fork, South Fork, and mainsten Catherine Creek; mainstem Grande Ronde River; and Sheep Ck,

3/ Spring chinnok spawning ground counts were obtained from Duane C. West, District Fish Biologist, La Grande District, Oregon Department of Fish and Wildlife

4/ The 1989 fish run was very low due to a flood/fire on Tanner Gulch, upstream on the Upper Grande Ronde drainage. Estimated 100% mortality.

TABLE 5. Counts of returning adult spring chinook and summer steelhead over Lower Granite Dam on the lower Snake River, 1975 through 1990. Spring chinook counts include adults and jacks. (See footnotes l-3 below.)

YEAR	ANNUAL COUNTS Summer Steelhead	Spring Chinook
1975	13,532	17,639
1976	20,020	20,475
1977	48,037	38,770
1978	23,565	41,006
1979	20,281	7,539
1980	32,677	6,758
1981	33,234	13,642
1982	63,070	12,746
1983	76,673	10,026
1984	86,448	7,921
1985	102,104	27,737
1986	116,622	32,929
1987	54,055	29,781
1988	72,884	30,419
1989	125,188	14,504
1990	56,942	17,371

1/ Counts for 1975 through 1984 were taken from the Oregon Department of Fish and Wildlife, Columbia River Management, Columbia River Fish Counts Report, January 1985.

2/ The 1985 through 1988 figures were obtained from personal communication with Howard Jensen, Oregon Department of Fish and Wildlife, Clackamas,OR.

3/ The 1989 and 1990 counts were obtained through personal communication with Curt Melcher, Oregon Department of Fish and Wildlife, Clackamas, OR.

road construction, and stream channelization; livestock grazing and farming practices being the main factors on private lands. The result of this degradation has been loss of shade producing streamside vegetation, thereby causing high summer water temperatures, and destruction of natural pool/riffle ratios which are necessary for good smolt production. It has been estimated there is currently a 28 percent shade cover over most streams within project areas and, with proper habitat enhancement measures, this can be increased to 70 percent; a 250 percent increase over present shade cover. Installation of instream structures can restore pool/riffle ratios to an acceptable ratio. Therefore, through an aggressive habitat enhancement program, optimum habitats for returning adults and their progeny may be realized.

DESCRIPTION OF STUDY AREAS

JOSEPH CREEK SUBBASIN

The Joseph Creek subbasin constitutes a major subbasin within the Grande Ronde River basin of northeast Oregon. It drains approximately 556 square miles of the 3,950 square mile Grande Ronde River basin and empties into the Grande Ronde River 4.3 miles above the confluence of the Grande Ronde and Snake rivers (Figure 1). Approximately 75 percent of the Joseph Creek subbasin is within the project area. Not included in the project area is lower Joseph Creek in Washington state and the Cottonwood Creek drainage which enters Joseph Creek 4.4 miles above Joseph Creek's confluence with the Grande Ronde River (Figure 1).

Within the project area 120.5 miles of stream have been identified as in need of habitat enhancement; 75 miles on private land and 45.5 miles on National Forest lands (Table 1).

UPPER GRANDE RONDE RIVER SUBBASIN

The upper Grande Ronde River subbasin constitutes approximately 1,622 square miles of the Grande Ronde River basin above the confluence of the Grande Ronde and Wallowa rivers at Rondowa; 81.4 miles upstream from the confluence of the Grande Ronde and Snake rivers (Figure 2). A major portion of the upper Grande Ronde River subbasin, including the mainstem Grande Ronde River and 33 of its tributaries, are within the project area.

Within the project area 211.8 miles of stream have been identified as in need of habitat enhancement; 116.8 miles on private lands and 95.0 miles on National Forest lands (Table 2).

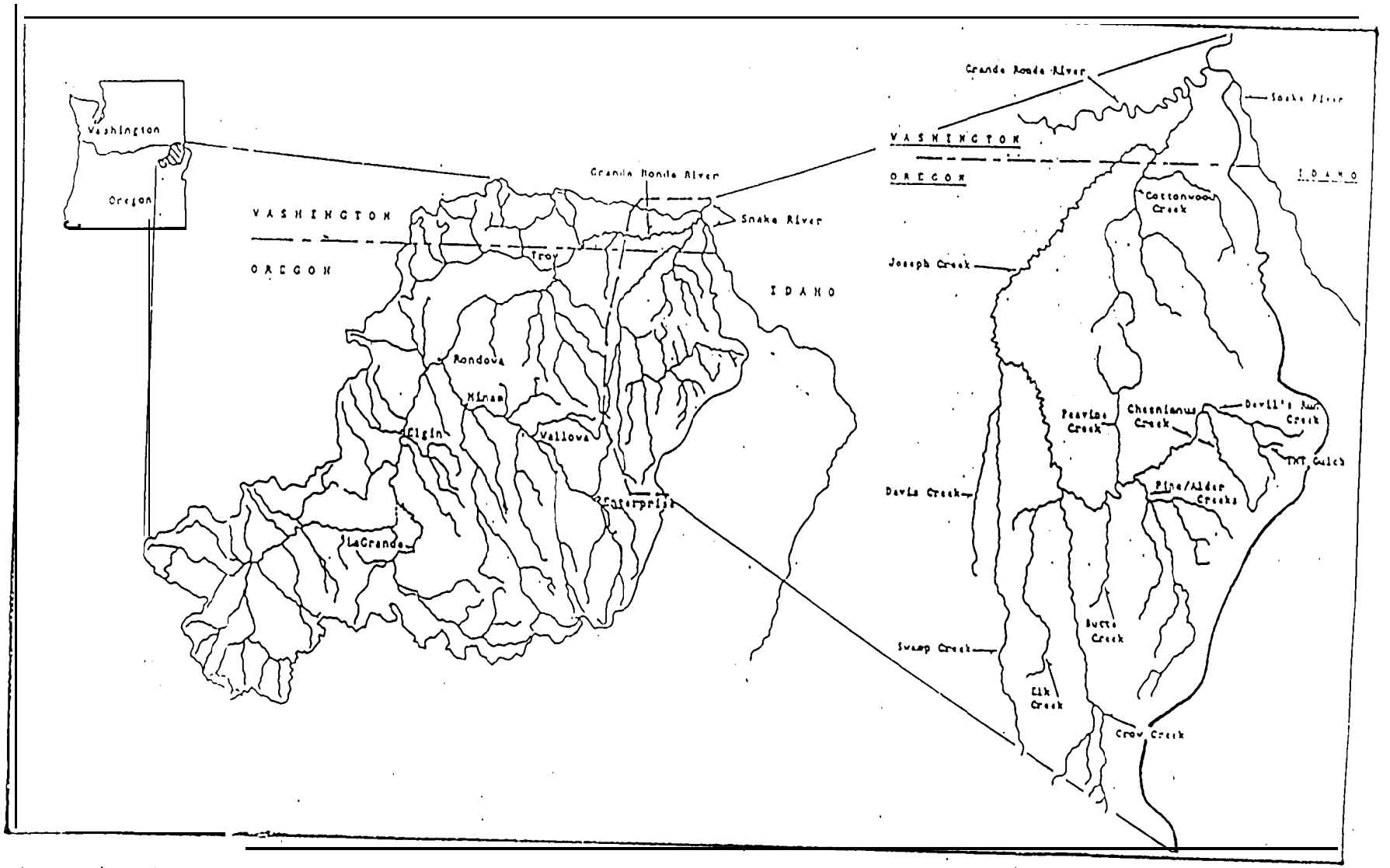

Figure 1. The Joseph Creek Drainage as it relates to the Grande Ronde River Basin of northeast Oregon and southeast Washington.

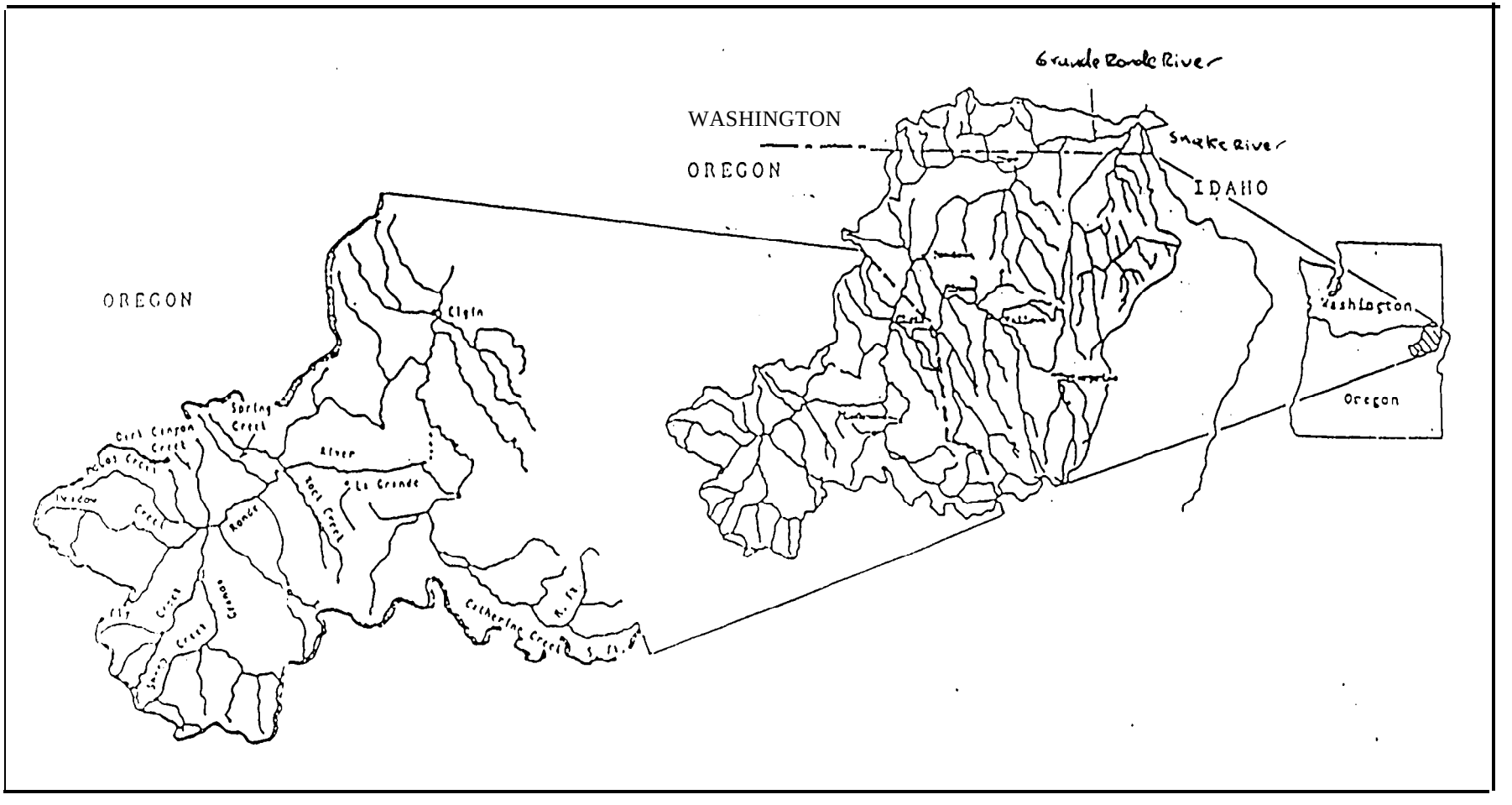

Figure 2. The Upper Grande Ronde River Drainae as in trlates to the Grande Ronde River Basin of northcast oregon.

METHODS AND MATERIALS

The goal of this program is to optimize spring/summer chinook and summer steelhead smolt production within the Grande Ronde River Basin using habitat enhancement measures. To accomplish this goal, work will progress in three phases:

1. planning and preparation (prework),
2. implementation, and
3. maintenance and evaluation.

PREWORK

Prior to actual project implementation the following activities are to be conducted:

Project Planning

Project planning includes design and layout of all work to be done onsite, landowner coordination, development of contracts and contract specifications, and obtaining necessary work permits.

Project Preparation

Prior to signing leases or construction contracts, all lease boundaries and work sites must be identified, staked, and agreed upon by the landowner and/or contractor. Work sites may include easements or right-of-ways, fences, instream structures, offsite water developments, planting, and miscellaneous lease or construction related areas.

Riparian Lease Development and Procurement

Riparian lease development and procurement includes meeting with landowners and/or their legal representatives specifically for the purpose of developing an acceptable lease text, and/or signing lease documents.

Field Inventories

Inventorying of physical parameters (i.e., flow features, substrate type, riparian vegetation, etc.) within riparian areas is necessary to determine which parameters, if any, are in need of restoration or enhancement. Prior to designing or implementing any riparian work, standard physical parameters are measured and evaluated. Data from these inventories are used to help prioritize streams and explain habitat enhancement needs to landowners.

IMPLEMENTATION

Implementation entails the actual on-the-ground work phase of the program and may include any or all of the following:

Instream Structures

During late summer and early fall when stream flows are lowest, structures will be installed in streams at locations preselected by fishery biologists and/or hydrologists. Structures of various types will be used to provide optimum pool/riffle ratios, raise riparian water tables, and collect spawning gravels, thereby increasing quantity and quality of rearing and spawning habitats. Rock jetties and deflectors will be the primary structures used to stabilize streambanks. Boulders will be used to create small rearing pools and hiding cover.

Planting

During the early spring, shrub and/or tree species may be planted at preselected locations along streams within project areas. Since high summer water temperature appears to be a major limiting factor, plantings will be made to provide stream shade, thereby reducing summer water temperatures and increasing salmonid utilization of streams. The maximum shade attainable for most streams in project areas is estimated at about 80 percent. The objective of this phase of the program is to reach a minimum of 70 percent shade and have water temperatures of no more than 68xF within 20 years of project implementation.

During the fall, areas disturbed while doing implementation activities will be seeded to stabilize soils and discourage weed growth.

Fencing

Destruction of streamside vegetation by domestic livestock has been a major problem within project areas. To provide protection from livestock and thereby promote rapid recovery of existing and planted vegetation, fences will be constructed along riparian zones within project areas.

Photopoint Establishment

Photopoint establishment includes locating and placing permanent markers at sites from which photographs can be taken at regular intervals, thereby depicting riparian changes through time. Also associated with photopoint establishment is development of a photopoint notebook for each project area.

Offsite Water Developments

In an attempt to reduce the number of watering gaps in t-iparian fences (thereby reducing fence construction and maintenance costs), and to encourage livestock utilization of vegetation away from riparian areas, offsite water sources will be developed.

Habitat Monitoring Transects

Within selected project areas permanent habitat monitoring transects will be established. Specific measurements wi 11 then be taken along each transect. These measurements will be repeated at regular intervals and compared with original measurements as a means of quantitatively measuring environmental changes through time.

Miscellaneous Field Activities

Cooperator sign boards denoting riparian enhancement projects as cooperative efforts between BPA, ODFW and private landowners will be installed at high visibility sites along completed riparian enhancement project areas.

MAINTENANCE AND EVALUATION

Postwork entails all maintenance and evaluation of work which has been done within project areas. This phase of the program will usually begin the year following completion of implementation and will continue for several years. Typical postwork activities may include:

Project Maintenance

Following completion of implementation a bi-annual inspection of all project areas will be made. Following these inspections all fence and instream structure maintenance will be done. Stream cross fences and/or watergap cross fences will be either put in or removed during these inspections or subsequent maintenance.

Photopoi nt Picture Taking

Standardized pictures will be taken from preselected photopoints prior to implementation on any project area and then during the spring and fall for two years immediately following completion of a project. Once these initial photos are obtained the frequency of photopoint picture taking may diminish to once every two to three years.

Habitat Monitoring Transect Data

Immediately after establishing habitat monitoring transects, baseline data will be collected. Data collection, following the establishment of baseline data, will be done on the first year following completion of implementation activities and then at approximately 3 to 5 year intervals.

Miscellaneous Field Activities

Thermographs have been installed within and/or adjacent to selected project areas. These thermographs will then be monitored on a regular basis to detect changes in water temperatures.

RESULTS AND DISCUSSION: I FIELD ACTIVITIES

Project Planning

Design and Layout

Identification of property boundaries for privately owned lands along priority streams in the Joseph Creek and upper Grande Ronde subbasins was the first step in preparation for doing habitat enhancement work. The mapping for the private lands was accomplished in 1988. Additional mapping was done in 1990.

Landowner Coordination

Considerable time was spent during the year meeting with landowners in the Joseph Creek, Upper Grande Ronde River subbasins, and Camas Creek which is located in the John Day basin. Contacts were in the form of telephone conversations, on-the-ground inspection of proposed project sites, slide presentations, and letters. During these meetings emphasis was placed on meeting fishery needs while at the same time benefiting landowners.

During 1990 seven landowners in the Joseph Creek subbasin, seven landowners in the upper Grande Ronde subbasin, and twelve landowners in the Camas Creek subbasin (John Day basin) were contacted regarding possible work on their properties.(Table 6,7,and 8).

Developing Contracts and Contract Specifications

Considerable time during 1990 was devoted to developing contracts and contract specifications for fence and instream structure contracts. Thirteen contracts were needed to accomplish implementation activities in 1990. These contracts resulted in construction of 5.8 miles of fence and completion of 2.9 miles of instream work. All awarded contracts were prepared and administered by project personnel.

Obtaining Work Permits

A Waiver for instream work on Meadow Creek and the Upper Grande Ronde River was applied for and received from the Oregon Division of State Lands (ODSL). A Fill and Removal Permit for instream work on Whiskey Creek was applied for and received from the ODSL and the US Army Corps of Engineers.

Project Preparation

In preparation for prebid tours,14.1 miles of fenceline along Butte Creek, Salmon Creek, Meadow Creek, Whiskey Creek, and the Upper Grande Ronde River were staked. Most of this was restaked at least once prior to construction due to damage to the staking by domestic livestock. Additionally about 19.9 miles of

TABLE 6. Landowners contacted in the Joseph Creek drainage for the purpose of discussing riparian management programs and/or riparian lease development in 1990.

Josph Creek Landowners	Stream Involved
McClaran	Adler, Pine Cks.
Yost	Butte Ck.
McDaniel	Butte Ck.
McDaniel	Pine, Chesnimnus Cks.
Fleshman	Crow Ck.
Ketcher	Salmon Ck.
Chi lder	Swamp Ck.
Dawsons	Crow, Chesnimnus Cks.

TABLE 7. Landowners contacted in the Upper Grande Ronde drainage for the purpose of discussing riparian management programs and/or riparian lease development in 1990.

Upper Grande Ronde Landowners	Stream Involved
clark	Beaver Ck., Up. Grande Ronde R.
Shiller	Fly, Chicken, Sheep Cks.
Mosgrove	Bear Ck, Upper Grande Ronde R.
Sherman	Rock Ck.
Delve	Upper Grande Ronde R.
Tsi atsos	Upper Grande Ronde R.
Courtney	Whiskey Ck.
Able	Upper Grande Ronde R.

TABLE 8. Landowners contacted in the John Day River drainage for the purpose of discussing riparian management programs and/or riparian lease development in 1990.

John Day Landowners	Stream Involved
Christian	Camas Ck.
Fletcher	Camas Ck.
French	Camas, Owens Cks.
Hoef t	Camas Ck.
Hughes	Camas Ck.
Ne 1 son	Camas Ck.
Owens	Camas Ck.
Palmer	Camas Ck.
Pendleton Ranches	Camas Ck.
Rhinehart	Camas Ck.
Cunningham Sheep	Camas, Owens Cks.
Markgraf	Camas Ck.

fenceline was staked for lease development purposes. All of these areas will hace to be restaked at least twice more in 1991 prior to project implementation.

Prebid inspection tours were conducted by ODFW personnel for all construction contracts.

Construction, preparation, and purchasing of all field equipment and materials needed for implementation activities were completed.

Riparian Lease Development and Procurement

Four riparian leases were signed with Grande Ronde Subbasin landowners in 1990 for projects to be implemented in 1991: one for Chesnimnus and Pine Creeks (McDaniels) in the Joseph Creek drainage, two on the Upper Grande Ronde Mainstem (Delve and Able), and one on Whiskey Creek (Courtney) in the Upper Grande Ronde drainage. We now have 20.6 miles of stream and 387.5 acres of riparian habitat leased in the Joseph Creek drainage, and 18.8 miles of stream and 281.1 acres of riparian habitat leased in the Upper Grande Ronde drainage.
(Tables 9,lO,ll,and 12).

Field Inventories

Data was collected from four of five thermographs on project areas in the upper Grande Ronde subbasin for the third year: two along Sheep Creek and two of three along McCoy Creek (Appendix A). We discontinued monitoring and using the (third/upper) thermograph on McCoy Creek because the site is dewatered in the summer. In 1991 we will place two thermographs in the Joseph Creek subbasin.

TABLE 9. Completed projects within the Joseph Creek drainage, 1985-1990.

Creek	Landowner	Acres	Stream Miles	Fence Miles
Chesnimnus Ck.	Yost	41.8	3.0	5.4
Elk Ck.	Birkmaier	7.7	0.6	1.4
Swamp Ck.	Olson	16.2	2.4	4.4
Swamp Ck.	Boise Cascade	48.6	2.6	4.9
Crow Ck.	Fleshman	10.5	1.2	2.4
Crow Ck.	Buhler	7.4	0.8	1.5
Salmon Ck.	McClaran	7.0	0.7	1.4
Salmon Ck.	McDaniel	45.5	1.6	3.2
	Total	184.7	12.9	24.6

TABLE 10. Ongoing & Proposed Projects within the Joseph Creek drainage, 1991.

Creek	Landowner	Acres	Stream Miles	Fence Miles	Miles Completed
Butte Ck.	McDaniel	29.2	2.8	4.7	1.0
Pine Ck.	McDaniel	43.5	1.4	3.4	0.0
Chesnimnus Ck.	McDaniel	130.1	3.5	8.9	0.0
	Total	202.8	7.7	17.0	1.0

TABLE 11. Completed projects within the Upper Grande Ronde River drainage, 1986-1990.

Creek	Landowner	Acres	Stream Miles	Fence Miles
Fly Ck.	Smith	14.8	1.2	1.7
McCoy Ck.	Tipperman	19.6	1.6	3.1
Meadow Ck.	Waite	19.7	1.2	1.9
Meadow Ck.	Tipperman	56.8	2.7	5.3
Meadow Ck.	B.M.C.B.A.	6.6	0.4	0.6
Sheep Ck.	Vw	54.7	4.3	6.0
Sheep Ck.	BLM	12.8	0.7	0.8
	Total	185.0	12.1	19.4

NOTE: Tipperman property formerly owned by Misener.

TABLE 12. Ongoing & Proposed Projects within the Grande Ronde River drainage, 1991:

Creek	Landowner	Acres	Stream Miles	Fence Miles	Miles Completed
U.G.R. River	Bowman/Hoef t	37.8	1.4	2.8	0.3
U.G.R. River	Delve	5.0	0.6	1.2	0.0
U.G.R. River	Able	7.0	0.4	0.8	0.0
Whiskey Ck.	Hampton	15.2	1.5	2.8	1.3
Whiskey Ck.	Courtney	31.1	2.8	5.6	0.0
	Total	96.1	6.7	13.2	1.6

IMPLEMENTATION

Instream Structures

Creating large complex pools was one of the objectives for Meadow Creek and the Mainstem Grande Ronde River. According to (Sedell and Everest, 1990) approximately 70 percent of the large pool habitat in the Mainstem Upper Grande Ronde River and approximately 26 percent in Meadow Creek has been lost since 1941.

Meadow Creek - Historically steelhead and spring chinook have used Meadow Creek for spawning and rearing. Four log weirs were constructed on top of bedrock formations in Meadow Creek. These structures created pool/riffle rearing and feeding habitat for juvenile steelhead and raised the water table for riparian recovery. Boulders were placed in conjuction with weirs and woody debris to create scour pools, edge habitat, and instream diversity.

Whiskey Creek - Two log weirs were constructed in Whiskey Creek approximately 300 yards upstream of the mouth, and just downstream of a spring fed tributary, in Whiskey Creek. The weirs will pool and back up the cooler spring water (52-56 F in July 1990) into the spring tributary as well as Whiskey Creek itself, which will provide a cool pool and riffle for summer rearing juvenile steelhead. Approximately 25 boulders, 23 trees, and 2 root wads were placed in Whiskey Creek for additional instream habitat diversity.

Upper Grande Ronde River - Approximately 420 boulders were placed in a wide array of formations: upstream and downstream v-weirs, strings, clusters, scour rocks in weir pools and jetties, off of rock faces, and in conjuction with whole trees and root wads. Additionally 27 rock jetties were constructed for bank stabilization, riparian restoration, scour pools, and edge habitat. The jetties also provided "hard" points along the bank that were used in conjuction with trees, boulders, and root wads for additional instream habitat diversity. A total of 16 trees and 12 root wads were installed.

Planting

Meadow Creek, Whiskey Creek, and the Upper Grande Ronde River were planted with 150 lbs of a riparian grass seed mix after the instream work was completed. The Salmon Creek projects (McClaran and McDaniel) were planted with 540 shrubs. A total of 200 1 bs. of upland grass seed mix was planted on McDaniel's property after the fence was completed (Table 13 and 14).

TABLE 13. Plantings performed on riparian areas in the Upper Grande Ronde River drainages, 1990.

Stream	Owner	Species	Number Planted	Lbs. of Seed
Meadow Ck.	B.M.C.B.A.	Grass Mix		30
Upper Grande Ronde R.	Bowman/Hoeft	Grass Mix		70
Whiskey Ck.	Hampton	Grass Mix		50
		Totals		150

TABLE 14. Plantings prformed on riparian areas in the Joseph Creek drainage, 1990.

Stream	Owner	Species	Number Planted	Lbs. of Seed
Salmon Ck.	McDaniel	Rocky Mtn. Maple	5	
Salmon Ck.	McDaniel	Mountain Alder	5	
Salmon Ck.	McDaniel	Quaking Aspen	5	
Salmon Ck.	McDaniel	Mountain Ash	5	
Salmon Ck.	McDaniel	Snowberry	5	
Salmon Ck.	McDaniel	Serviceberry	5	
Salmon Ck.	McDaniel	Chokecherry	5	
Salmon Ck.	McDaniel	Multiflora rose	5	
Salmon Ck.	McDaniel	Grass Mix		200
Salmon Ck.	McClaran	Rocky Mtn. Maple	45	
Salmon Ck.	McClaran	Mountain Alder	45	
Salmon Ck.	McClaran	Quaking Aspen	35	
Salmon Ck.	McClaran	Mountain Ash	45	
Salmon Ck.	McClaran	Snowberry	95	
Salmon Ck.	McClaran	Serviceberry	95	
Salmon Ck.	McClaran	Chokecherry	95	
Salmon Ck.	McClaran	Multiflora rose	45	
		Totals	540	200

1/ Grass Mix on the Upper Grande Ronde subbasin consisted of Clover, Fescue, Alfalfa, and Timothy. Grass Mix on the Joseph Creek subbasin included all of the above, plus Orchard grass.

Fencing

Joseph Creek Drainage.

Two barbed wire fence contracts (Salmon and Butte) totalling 7.9 miles were awarded but resulted in construction of only 4.2 miles of fence. The fence was completed for Salmon Creek which totaled 3.2 miles. We only completed 1.0 mile of fence along Butte Creek because inferior workmanship by the contractor resulted in termination of the contract. The remaining 3.7 miles of fence for Butte Creek will be completed in 1991.

One contract to construct sixteen watergap fencing units on Salmon and Butte Creeks was completed in 1990.

Upper Grande Ronde River Drainage.

Two hi-tensile smooth wire fence contracts (Whiskey Creek and Upper Grande Ronde River) for constructing 5.6 miles of fence were awarded. Due to winter weather, however, construction of only 1.6 miles of fence was completed. The remaining 4.0 miles of fence will be completed in 1991.

One barbless wire fence contract (Meadow Creek) for construction of 0.6 miles of fence was completed.

Photopoint Establishment

Thirty-two photopoints were established on new (1990) Upper Grande Ronde Drainage project sites; 16 on Mainstem Upper Grande Ronde River (Bowman-Hoeft) 8 on Meadow Creek (Camp Elkanah), and 8 on Whiskey Creek (Hampton). Eight photopoints were established on new (1990) Joseph Creek Drainage project sites; 8 on Salmon Creek (McDaniel), and Butte Creek McDaniel-none. Butte Creek will be established in 1991. All photopoints were marked with a steel post and metal identification tag. The photopoints will be retaken in 1991 and will be high graded at that time for the permanant project f i les. All photopoints established have been catalogued into notebooks.

Miscellaneous Field Activities

Signs denoting riparian project areas as a cooperative effort betwen BPA, ODFW, and landowners were placed on the riparian fences on Meadow Creek, Whiskey Creek, and the Upper Grande Ronde River in the Upper Grande Ronde drainage. Signs were also placed on Salmon Creek and Butte Creek in the Joseph Creek drainage.

Approximately two weeks were spent orienting new project personnel to the Upper Grande Ronde River and Joseph Creek drainages.

MAINTENANCE AND EVALUATION

Project Maintenance

Inspection of project fence was done for 24.6 miles of fence in the Joseph Creek subbasin and for 18.8 miles of fence in the Upper Grande Ronde River subbasin for a total of 43.4 miles of fence. Maintenance occurred throughout the entire project as shown in (Table 15). Ice and spring flows damaged creek cross-fences and water gap fencing units throughout the project. A major emphasis in the 1990 field season was to refit all existing creek cross fences and water gap fencing units to the new design. All refitting of creek cross-fences and water gaps were completed in the Upper Grande Ronde drainage and approximately one/half were completed in the Joseph Creek drainage. The remainder will be refit in the 1991 field season. All refitting was done using ODFW seasonal and permanant personnel.

General maintenence was completed on all riparian fences throughout the project. Some of the early corner structures (ie. "pivot post w/angle braces") did not perform as desired, and are being replaced as needed. Another maintenence item was straightening stays and repounding all staples. Stay alingment is one of the biggest problems with hi-tensile smooth wire fences. We will continue to work on several new ideas for the above problem.

Photopoint Picture Taking

Pictures were taken during the spring and fall at photopoints established prior to 1989 and in mid to late summer on new (1990) projects. All photopoints were catalogued and put in project notebooks.

Thermograph Data Collection and Summarization

Data was collected from thermographs in Sheep and McCoy Creeks for the third year. The 1990 data sets were compared to 1989 and 1988 data sets, but no conclusions can be drawn from only three years of data. Al 1 data was enumerated using "QUATTRO" and graphed using "HARVARD GRAPHICS" (appendix A). Additional years of data sets will be collected to document temperature changes in the study streams.

Miscellaneous Field Activities

A Forest Practices Act (F.P.A.) violation was investigated on Chesnimnus Creek (Yost). A tree was felled and removed from within our leased riparian area. The logger was cited and fined for this F.P.A. violation.

TABLE 15. Summary of maintenance work performed on fences in the Upper Grande Ronde River drainage, 1990.

				HOURS						
CREEK	OWNER	Fence Type	Fence Miles	General Mainten.	Water Gap Mainten.	Water Gap Refit	Spring Mainten.	Weed Control	Other	Total
Sheep Ck.	Vey	HT	6.8	30	2	112	0	0	4	148
Fly Ck.	Smith	HT	1.7	18	6	0	0	0	0	24
Meadow Ck.	Tipperman	HT	5.3	17	14	143	0	0	0	174
Meadow Ck.	Waite	HT	1.9	11	5	16	0	0	0	32
McCoy Ck.	Tipperman	HT	3.1	8	5	36	0	0	8	57
		Totals	18.8	84	32	307	0	0	12	435

NOTES: "Other" column includes RTM maintenance and deployments.
Tipperman property was formerly owned by Misener.

TABLE 16. Summary of maintenance work performed on fences in the Joseph Creek drainage, 1990.

				HOURS						
CREEK	OWNER	Fence Type	Fence Miles	General Mainten.	Water Gap Mainten.	Water Gap Refit	Spring Mainten.	Weed Control	Other	Total
Swamp Ck.	Boise Cascade	HT	4.9	86	8	24	6	0	40	164
Swamp Ck.	Olson	BW	4.4	16	0	0	0	0	0	16
Elk Ck.	Birkmaier	BW	1.4	40	0	16	0	0	0	56
Crow Ck.	Buhler	HT	1.5	31	8	56	0	0	0	95
Crow Ck.	Fleshman	HT	2.4	90	0	0	3	0	3	96
Chesnimus Ck.	Yost	HT	5.4	76	16	72	0	24	0	188
Salmon Ck.	McClaran	HT	1.4	28	0	0	0	0	0	28
Salmon Ck.	McDaniels	BW	3.2	0	16	0	0	0	0	16
Butte Ck.	McDaniels	BW	1.0	0	0	0	0	0	0	0
		Totals	25.6	367	48	168	9	24	43	659

NOTES: "Other" column includes 1) adding 3 escape gates on Boise Cascade property, and 2) addition of a beaver control pipe on the Fleshman property.

RESULTS AND DISCUSSION II. ADMINISTRATION

ADMINISTRATIVE

Administrative activities during 1990 included preparation of reports and data summaries, budgets and purchasing, program development, supervision of personnel, and contract administration.

Reports and Data Summaries

Monthly and annual progress reports for the Joseph Creek and upper Grande Ronde drainages were prepared and submitted to BPA.

Information pertinent to the 1991-1992 Work Statement and budgets were submitted to the Region for document preparation.

Daily contract inspection reports were completed for all work done on the project.

A project description was written and submitted to the Union County Soil and Water Conservation District for inclusion in their annual newsletter.

Thermograph temperature numerical data was summarized using a program developed by the Confederated Tribe of the Umatilla Indian Reservation (C.T.U.I.R.) on "QUATTRO" software. These data were then graphed using " HARVARD GRAPHICS" software.

Project implementation summaries by drainage and stream were written and submitted to the region.

Budgets/Purchases

Considerable time was spent obtaining quotes for construction materials, and purchasing and receiving materials shipments. Al 1 capitol items were also purchased.

Program Development

The LaGrande Technician spent a considerable amount of time working on the "Harvard Graphics" program to make graphing data more consistent and user friendly. A tutorial was written to accompany the graphing packet.

Personnel

Mr. Mark Lacy was promoted from the John Day Habitat Technician to the Grande Ronde Habitat Biologist in February of 1990.

Mr. Vance McGowan was hired as the Upper Grande Ronde Habitat Technician 2 in June of 1990.

Mr. Steven Springston was promoted from the White River WMA Habitat Technician 1 to the Joseph Creek Habitat Technician 2 in June of 1990.

Two seasonal employees were hired for the 1990 field season: Joseph Creek – Mr. Ken Kilgore, Upper Grande Ronde – Mr. Dale Hemerick. The Joseph Creek seasonal employee spent 95 percent of his time on fence maintenance. The Grande Ronde seasonal employee spent 75 percent of his time on fence maintenance and 25 percent spent on cabling boulders and woody debris for instream habitat diversity.

Contract Administration

Thirteen contracts were administered by project personnel during 1990. Administering these contracts took considerable time for design, layout, construction, inspections, administration, and assisting contractors with materials handling.

INTER AND INTRA AGENCY COORDINATION/EDUCATION

INTERAGENCY COORDINATION

Several tours of project areas in both the Joseph Creek and Upper Grande Ronde drainages were conducted. Tours included personnel from ODFW, ODFW Commissioners, Washington State University and USFS.

Union County and Wallowa County SWCD monthly meetings were occasionally attended by ODFW project personnel.

A field review of the BPA funded habitat work in the John Day subbasin on USFS land was attended by project personnel. The review was conducted on three National Forests: Wallowa Whitman, Ma1 heur, and the Umatilla. Mr. Wayne Elmore, Mr. Bob Phillips, and Mr. Bill Platts critiqued the work and provided technical information that can be used by field personnel.

The Upper Grande Ronde River biologist met with the Federal Highway Administration to discuss F.S. road 51 in regards to the ODFW riparian project and the adjacent wetlands.

A meeting was attended to discuss the BPA/NWPPC Fish Habitat projects as presented by BPA regarding the subbasin planning process and the future of additional habitat work as part of the mitigation process.

The Cattleman's Association meeting was attended in Wallowa County.

A Riparian Workshop sponsored by the American Fisheries Society (A.F.S.) was attended by project personnel.

The annual A.F.S. meeting was attended by project personnel.

EDUCATION

The following educational activities were undertaken with various groups during 1990:

1. An Enterprise sixth grade class was instructed on riparian areas and their importance to the fish and wildlife resources.

2. All LaGrande fifth grade classes were given instruction and a field sampling (hands-on) l/2 day class on riparian areas and their importance to the fish and wildlife resources along and in the Grande Ronde River.

3. An Enterprise Future Farmer's of America (F.F.A.) group was instructed on riparian areas and their importance to the fish and wildlife resources. This same group also planted approximately 500 plants along Salmon Creek.

4. An Imbler High School advanced biology class was instructed on physical and biological monitoring techniques and the value riparian areas for watershed, and multiple resource uses. This was the third year that the students collected field data.

5. A local radio program show was done on the BPA/ODFW Grande Ronde River basin fisheries habitat project.

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LITERATURE

Confederated Tribes of the Umatilla Indian Reservation. 1984. Grande Ronde River Basin. Recommended Salmon and Steelhead Habitat Improvement Measures. 92 PP.

Nell, William T. et. al. 1987. Grande Ronde River Basin Fish Habitat Improvement Implementation Plan. 29 PP.

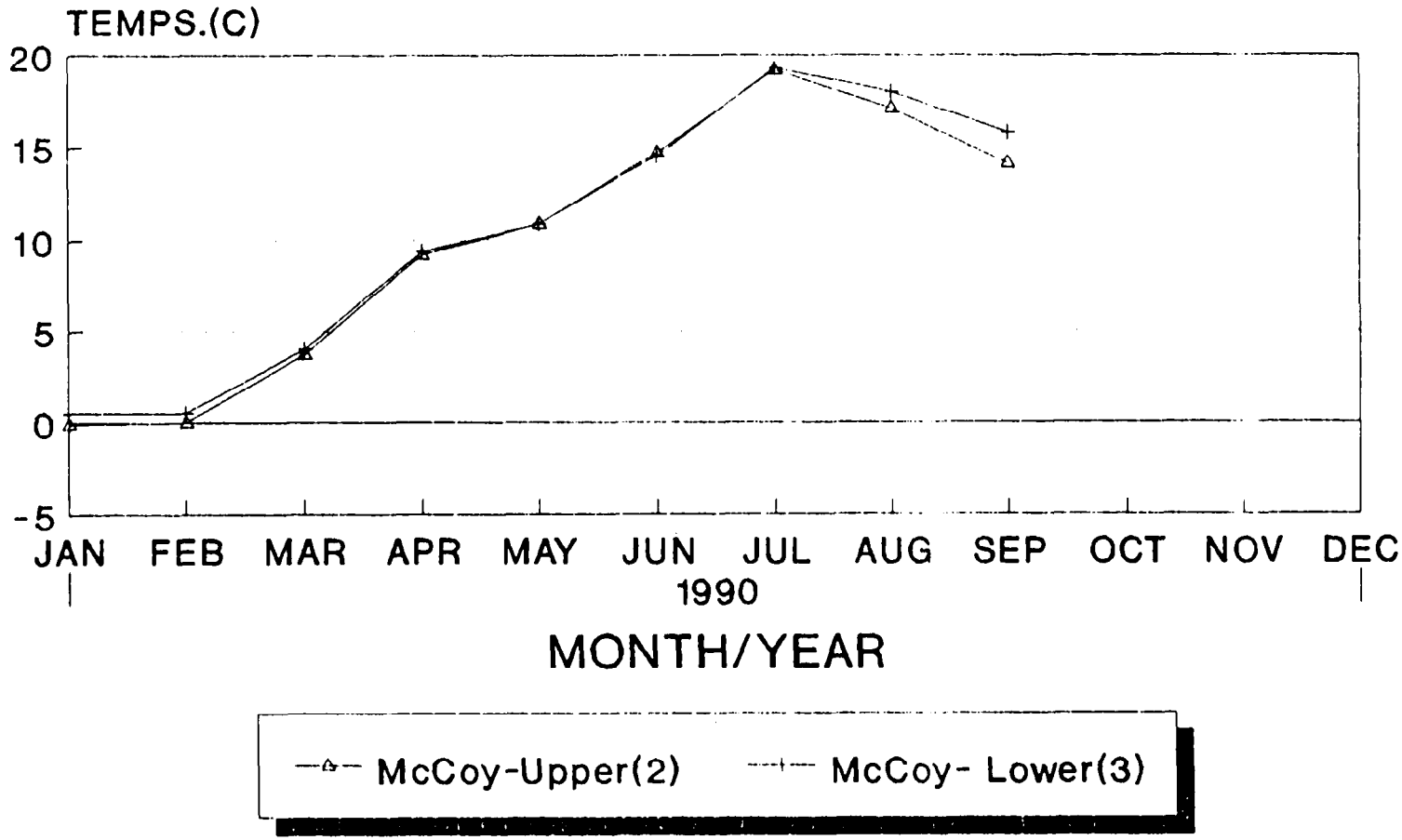
Sedell, James R. and Everest, Fred H. 1991. Historic Changes In Pool Habitat For Columbia River Basin Salmon Under Study For TES Listing. 7PP. (Draft).

APPENDIX A

THERMOGRAPHS

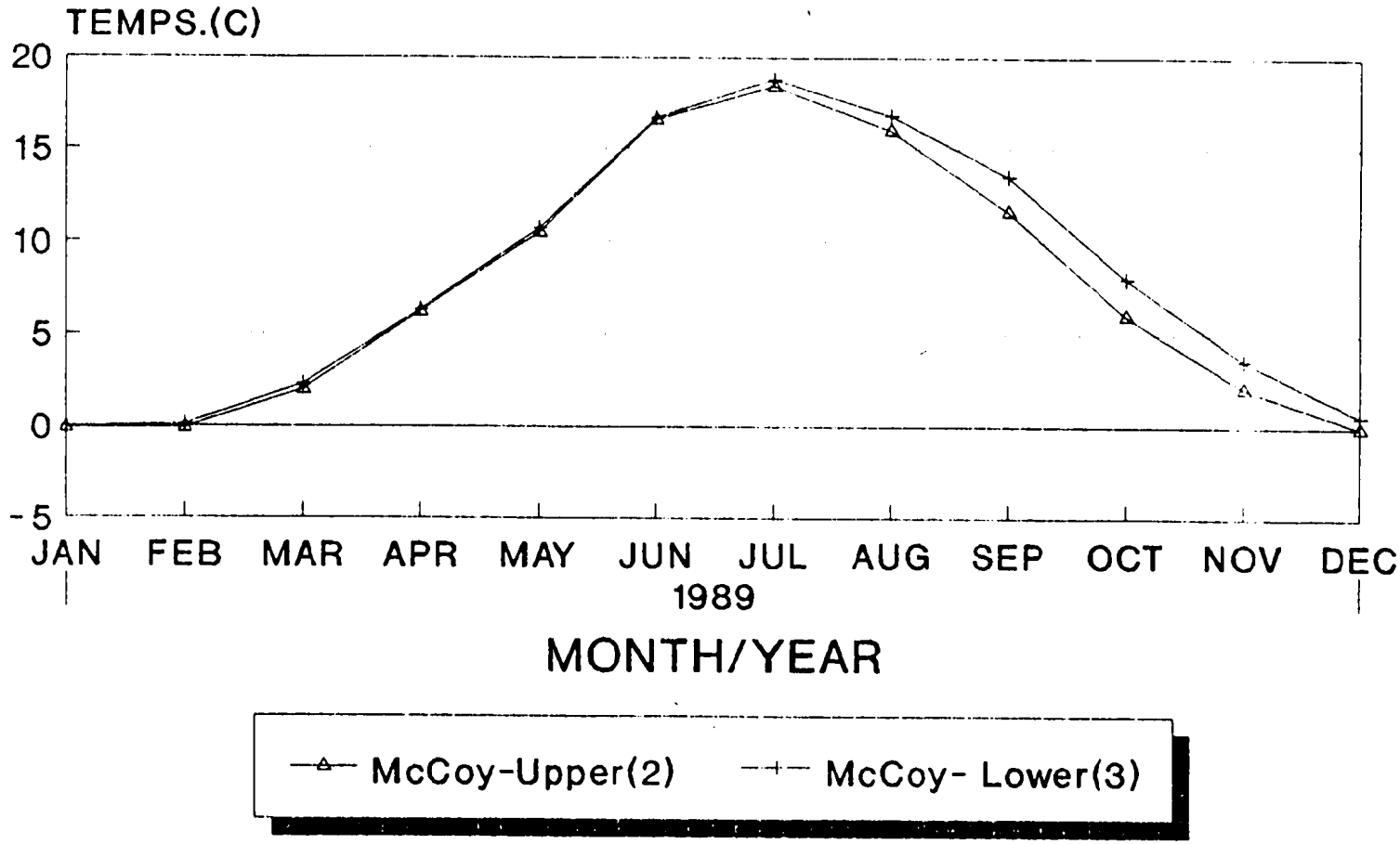
McCoy Creek and Sheep creek thermograph data has been gathered for three years. Data sets are inconclusive at this time. More years of data are needed to show instream temperature changes. As riparian vegetation recovers and provides shade and bank storage of water temperatures should be reduced.

McCOY CK.- Upper & Lower
RTM Monthly Mean Water Temperatures



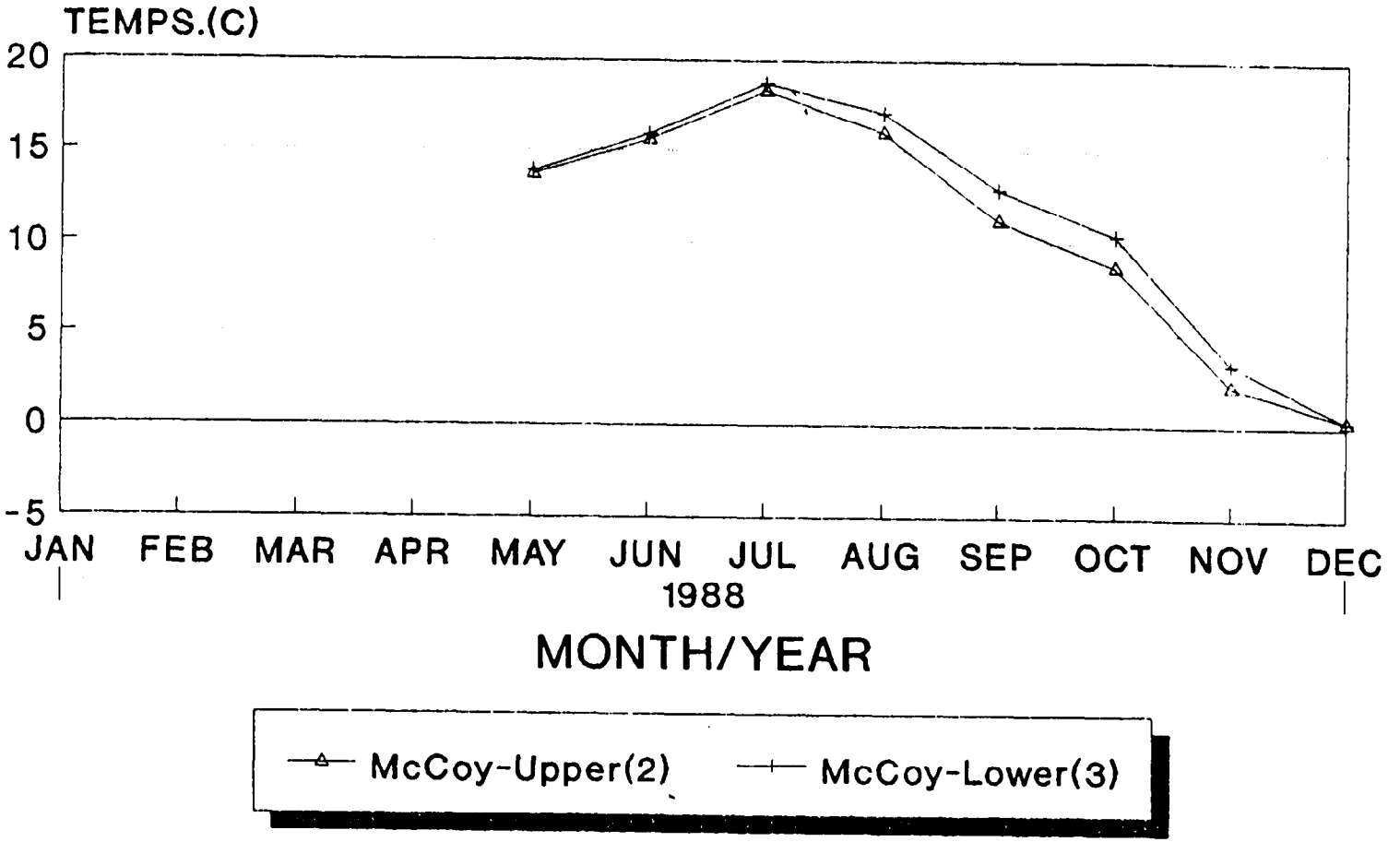
Deployment #004/6, up to 9/20/90.

McCOY CK.- Upper & Lower
RTM Monthly Mean Water Temperatures



Deployment #002-4

McCOY CK.- Upper & Lower
RTM Monthly Mean Water Temperatures



Deployment #001/2

SHEEP CK.- Upper & Lower
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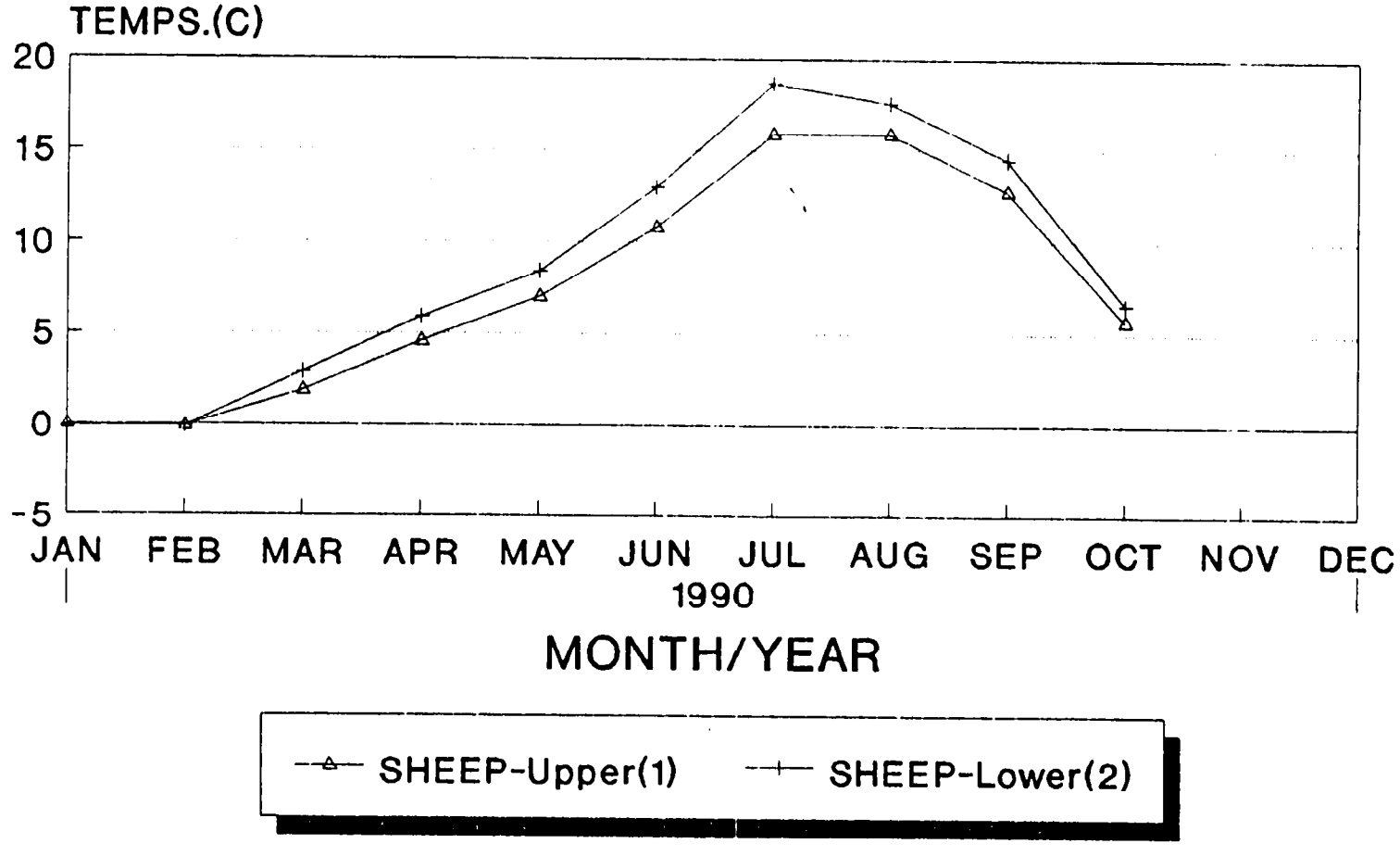

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SHEEP CK.- Upper & Lower
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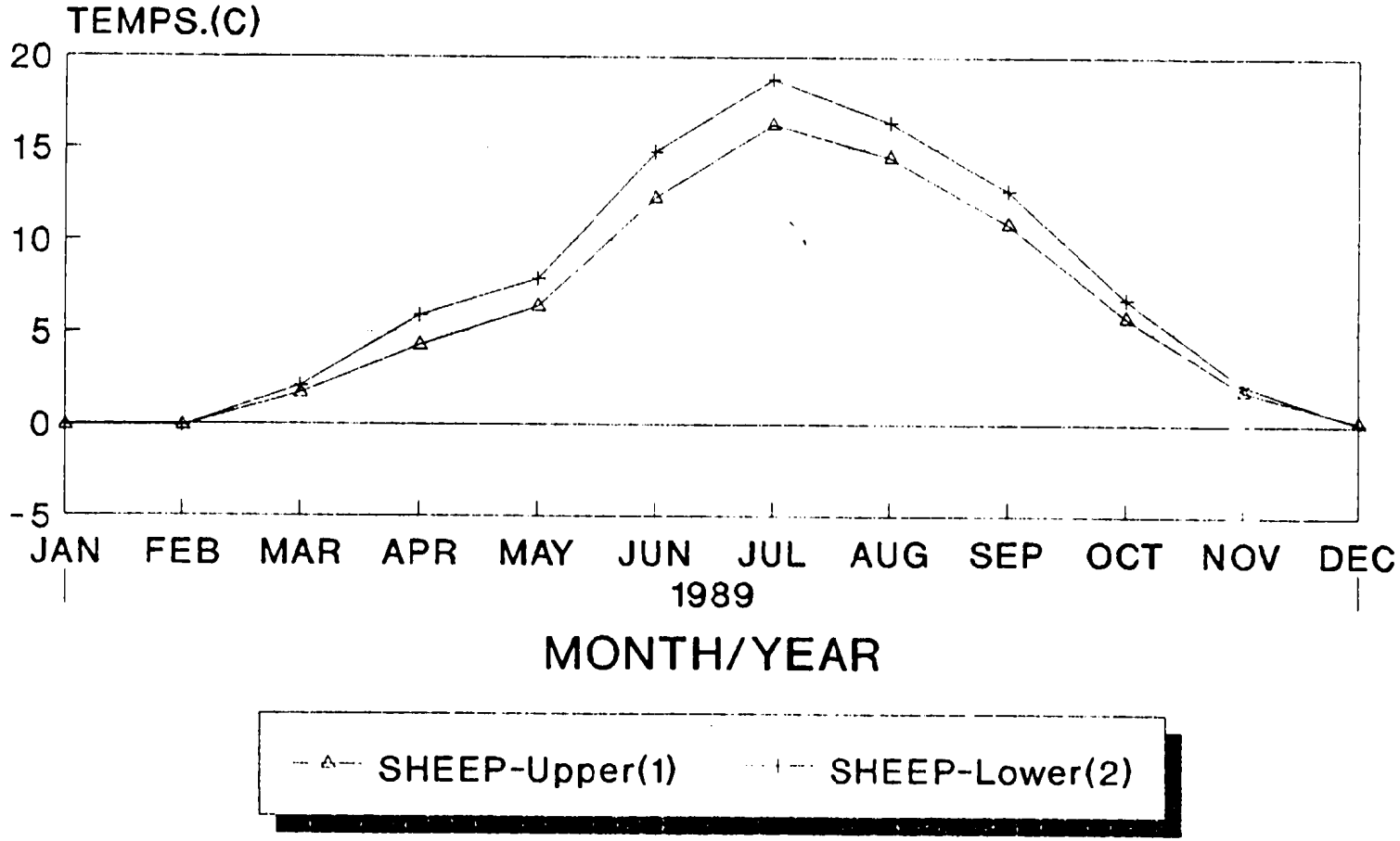

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SHEEP CK.- Upper & Lower
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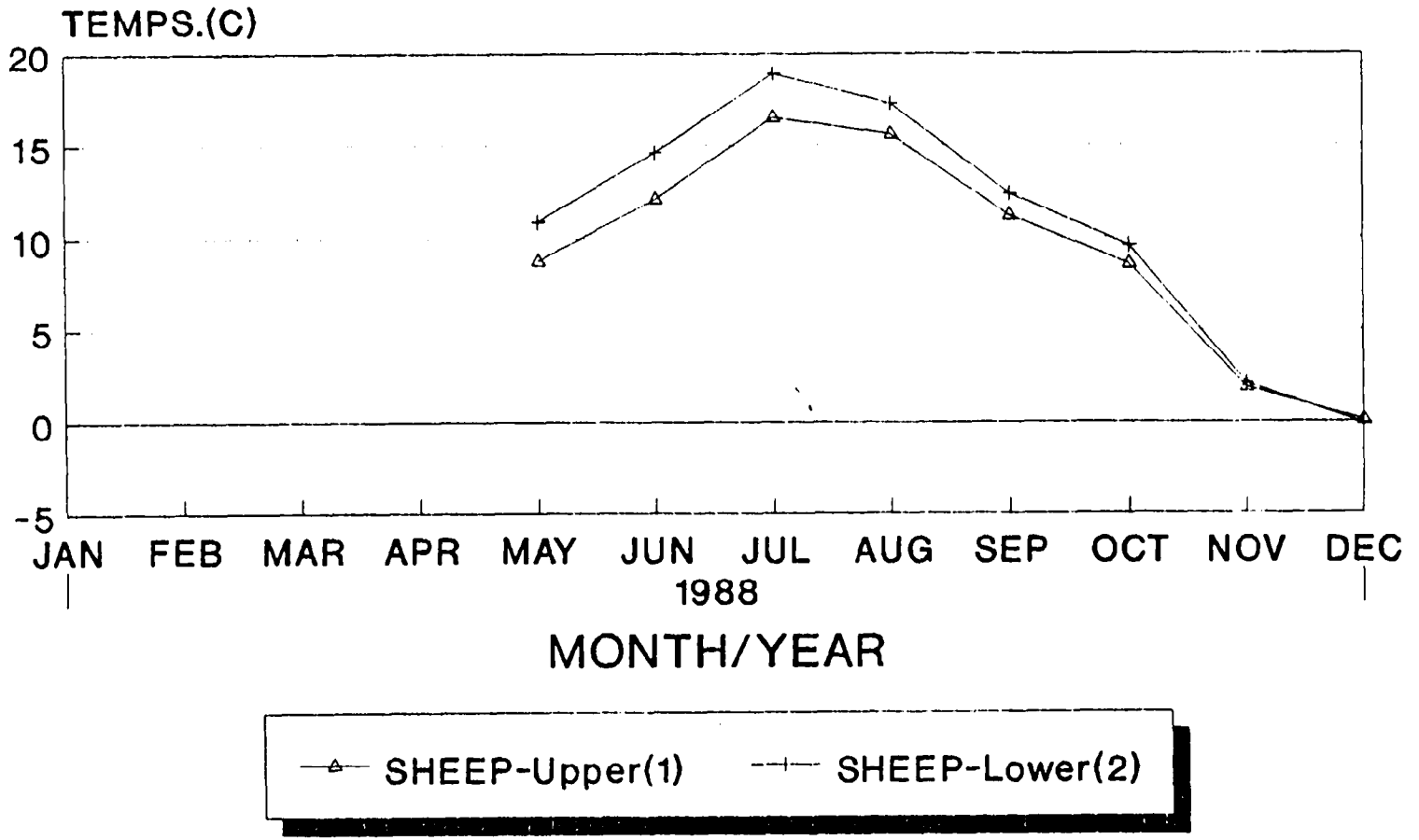

Deployment #001/2